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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/718,900

11/21/2003

Krishnan Chari

86421CPK

1667

7590

10/05/2006

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EXAMINER

VU, PHU

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 10/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/718,900

Applicant(s)

CHARI ET AL.

Examiner

Phu Vu

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 03 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 28-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 28-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1-3 and 5-9 and 28-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Yang 6061107.

Regarding claim 1, Yang teaches a display sheet comprising an optional substrate (fig. 2 element 104) for carrying layers of material; an imaging layer comprising a substantial monolayer of isolated domains (201-203) of liquid crystal dispersed in a continuous matrix, said LC having a first reflecting state within the visible light spectrum defining an operating spectrum and a second weakly scattering state in said operating spectrum (see fig. 4) which states are capable of being maintained as a stable state in an absence of electric field ("bistable" see title, abstract), wherein said domains of LC material comprises a mixture of at least two populations, a first population comprising a first LC material having a first λ_{\max} and a second population comprising a second liquid-crystal material having a second λ_{\max} wherein there is a difference between first and second λ_{\max} of at least 50 nm (red vs blue) wherein a

substantial monolayer of isolated domains of liquid-crystal material means that, at most, only a minor portion of the area of the display sheet has more than a single domain between the electrodes in a direction perpendicular to the plane of the display sheet, compared to the amount of area of the display sheet at which there is only a single domain between the electrodes (see fig. 2), and first transparent conductors disposed on one side of said imaging layer second conductor disposed on an opposite side of said imaging layer (see elements 103 and 104 which are referred to as glass plate with ITO coating).

Regarding claim 2, the reference shows a state with tristimulus values within 20% of each other (see fig. 10).

Regarding claim 3, 5, the reference teaches a first LC material has a peak reflected wavelength in the range of 561 to 720 nm (red) and second LC material has a peak reflected wavelength in the range of 450 to 560 nm (blue).

Regarding claims 6, 7 and 30-31, the reference teaches an imaging layer comprises a mixture of only two types of domains each reflecting a different part of the visible spectrum wherein said first material reflects red and second liquid crystal material reflects green or blue (see fig. 2). The first type is considered only red and the second type reflects blue or green, which has a peak of at least 100 nm more than a red peak.

Regarding claim 8, the reference teaches first and second conductors patterned to produce an addressable matrix (see fig. 8).

Regarding claim 9, the reference teaches chiral nematic liquid crystal material (see abstract "cholesteric") and said continuous matrix comprises a gelatin (fig. 2 102).

Regarding claims 28-29, the reference teaches no more than a single layer of domains sandwiched between electrodes at most or 75% or more points of the imaging layer.

Regarding claim 32-35, the first region as the red reflecting region and second region as the blue and green reflection region than these limitations are met.

Regarding claim 36, considering the red as one region and blue/green as another than the respective populations are 33% and 66%. These are considered about 50%.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yang in view of Faris 6753044.

Regarding claim 4, Yang teaches all the limitations of claim 4 except first and second liquid crystal material comprise a dopant having first and second concentration, wherein first and second concentration differs such that the pitch is smaller than that of the first liquid crystal. The primary reference teaches equal concentrations of the chiral

dopant and UV irradiation at different periods of time to achieve varying pitches. Faris teaches these method of controlling pitch are functional equivalents (see column 16 line 67- column 17 line 20). Therefore, use of one given the over is obvious as they are considered equivalent.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu Vu whose telephone number is (571)-272-1562. The examiner can normally be reached on 8AM-5PM M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571)-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Phu Vu
Examiner
AU 2871


ANDREW SCHECHTER
PRIMARY EXAMINER